



**N**avy & Marine Corps Public Health Center is conducting a Public Health Review which includes an Environmental Exposure Pathway and Epidemiologic Investigation of the following areas:

- ♦ MCAS Beaufort
- ♦ MCRD Parris Island
- ♦ Laurel Bay Housing



## PHR Status Update

### Summary

At the request of the U.S. Marine Corps, the Navy & Marine Corps Public Health Center (NMCPHC) is investigating the incidence of pediatric cancers in current and former residents of Laurel Bay Military (PPV) Housing, Marine Corps Air Station, Beaufort, South Carolina, that residents believe may be associated with environmental exposures. NMCPHC was requested to identify and validate all pediatric cancers in children that lived or were conceived in the Beaufort area to determine if the observed cancer rates exceeded that which would be expected in this population. This fact sheet summarizes the preliminary results of the PHR as of 14 January 2017.

### What We Are Doing

NMCPHC follows the U.S. Centers for Disease Control's Process for performing Public Health Reviews (PHR) that are associated with evaluating potential cancer risks. This process is comprised of two steps: (1) An Environmental Exposure

#### Cancer Cluster Investigations – We Follow the Centers for Disease Control's Process



Pathway Investigation and (2) An Epidemiologic Investigation. The results of these two investigations will be integrated in the final PHR. Subject Matter Experts (SMEs) in industrial hygiene, drinking water, environmental restoration, radon assessment and mitigation, occupational and environmental medicine, and epidemiology are reviewing numerous environmental documents and medical records data associated with MCAS Beaufort, MCRD Parris Island, and Laurel Bay Housing to evaluate the potential relationship, if any, between environmental exposures to chemicals and pediatric cancers in the population.

### Environmental Investigation Status Summary

A review of all available documents and reports pertaining to environmental sites on MCAS Beaufort in South Carolina is being performed as part of the PHR to determine if a potential public health hazard exists as a result of environmental releases from past disposal and handling practices.

Reports and other documents identified and reviewed for the PHR were primarily produced under the United States Navy's Environmental Restoration Program (ER Program). The ER Program began in the early 1980's in response to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

**Process Used:** Documents and reports associated with each environmental site are reviewed to determine the relevance of each in answering the question: "Is there a complete exposure pathway for air, water, soil, or soil gas by ingestion, inhalation, or dermal contact that could have contributed to incidence of

**N**MCPHC reviewed past and/or present potentially contaminated or regulated areas of concern (AOCs), solid waste management units (SWMUs), underground storage tanks (USTs) or general areas with different uses dating back to the initial opening of the bases.



**Data Gap** – Sites with incomplete or insufficient data for characterizing environmental concerns or potential pathways of exposures

### Cluster Investigation Elements:

- More than expected number of valid cancer cases
- The same or etiologically related cancers
- In a same geographic area
- Over a defined period of time
- Latency time (the time from first exposure to diagnosis) must be consistent with the cancer type.

**Valid cancer case** - a diagnosis consistent with malignant cancer and associated treatment records

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cancer?" The review is an iterative process. The review of findings and/or recommendations appearing in one report may lead to looking for a follow-up report or a data gap. Some information is readily available and some is not. As we identify data gaps, we then request additional information.

### Environmental Investigation Status Summary:

- PHR Initiated June 2015
- Periodic status meetings held with USMC
- Documents reviewed to determine potential health risks related to environmental releases from past disposal/handling practices at Housing, Solid Waste Management Units, Underground Storage Tanks, etc.
- Review available documents provided, over time, from Naval Facilities Engineering Command (NAVFAC), USMC, NAVHOSP Beaufort

Location	Number of Documents Reviewed
MCRD	~ 1,600
MCAS	~ 1,325
Laurel Bay	~ 100

- Review all pathways (air, water, soil, soil gas) of exposure
- Review all exposure routes (ingestion, dermal, inhalation)
- Identify data gaps (e.g., Laurel Bay Vapor Intrusion Investigation)
- Provide risk management recommendations
- Continue to provide risk communication support

### Epidemiologic Investigation

NMCPHC was requested to identify and validate all pediatric cancers in children that lived or were conceived in the Beaufort area from January 2002 to March 2016 to determine if the observed cancer rates exceeded what would be expected in this population.

**Process Used:** The epidemiologic study follows the Centers for Disease Control and Prevention "Guidelines for Investigating Clusters of Health Events".

### Epidemiologic Investigation Status Summary

- Study Area: Children (including those conceived) of active duty Marine Corps and Navy members assigned to work at MCAS and MCRD from January 2002 to March 2016. Study based on sponsor zip codes within a 30 mile radius of study area including Laurel Bay Housing.
  - Expanding population scope to include air squadrons that deployed through MCAS Beaufort with zip codes outside the study area.
- Cancers validated to date: acute lymphocytic leukemia (ALL), acute myeloid leukemia (AML), neuroblastoma, Wilms tumor, infantile rhabdomyosarcoma, brain cancer.
  - To date, 11 cases validated through review of electronic health records.
  - Four cancer types with known Environmental Risk Factors (ionizing radiation [therapeutic x-rays], benzene).
  - All case counts consistent within normal pediatric cancer type distribution for the same types of cancers in the general pediatric population.